Title (en)

MICROWAVE SELF-PHASING ANTENNA ARRAYS FOR SECURE DATA TRANSMISSION SATELLITE NETWORK CROSSLINKS

Title (de)

MIKROWELLEN-SELBSTPHASENSTEUERNDE ANTENNENGRUPPEN FÜR SICHERE DATENÜBERTRAGUNGS-SATELLITENNETZWERK KREUZVERBINDUNGEN

Title (fr)

RESEAUX D'ANTENNES HYPERFREQUENCES AUTO-ADAPTABLES POUR TRANSMISSION DE DONNEES SECURISEE ET LIAISONS CROISEES DE RESEAUX SATELLITAIRES

Publication

EP 1651976 A2 20060503 (EN)

Application

EP 04786461 A 20040804

Priority

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- US 57903504 P 20040610

Abstract (en)

[origin: US2005030226A1] A high-directivity transponder system uses a dual system of a retrodirective array transmitting a data signal peak toward an interrogator source, and a self-null-steering array transmitting a null toward the interrogator source and a jamming signal elsewhere, resulting in high S/N reception at the interrogator source and avoidance of interception. Integrating modulators would allow each array to transmit different data while the spectra of the transmitted signals are identical, thus disabling interception. The system enables secure point-to-point communications and can be used for short-distance wireless data transmission systems such as wireless LAN and RFID servers. As another aspect, self-steering signal transmission is employed for randomly oriented satellites using circularly polarized, two-dimensional retrodirective arrays. Quadruple subharmonic mixing is used as an effective means of achieving phase conjugation when a high-frequency LO is not feasible or inapplicable. These features may be used for small-satellite communications, secure tactical communications, search and rescue, enemy location fixing and tracking, UAV command and control, forest fire detection, marine-based tracking, and many other applications requiring secure communications with high signal directivity.

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G01S 3/16; H01Q 1/00

IPC 8 full level

H01Q 1/22 (2006.01); **H01Q 1/28** (2006.01); **H01Q 3/26** (2006.01)

CPC (source: EP US)

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